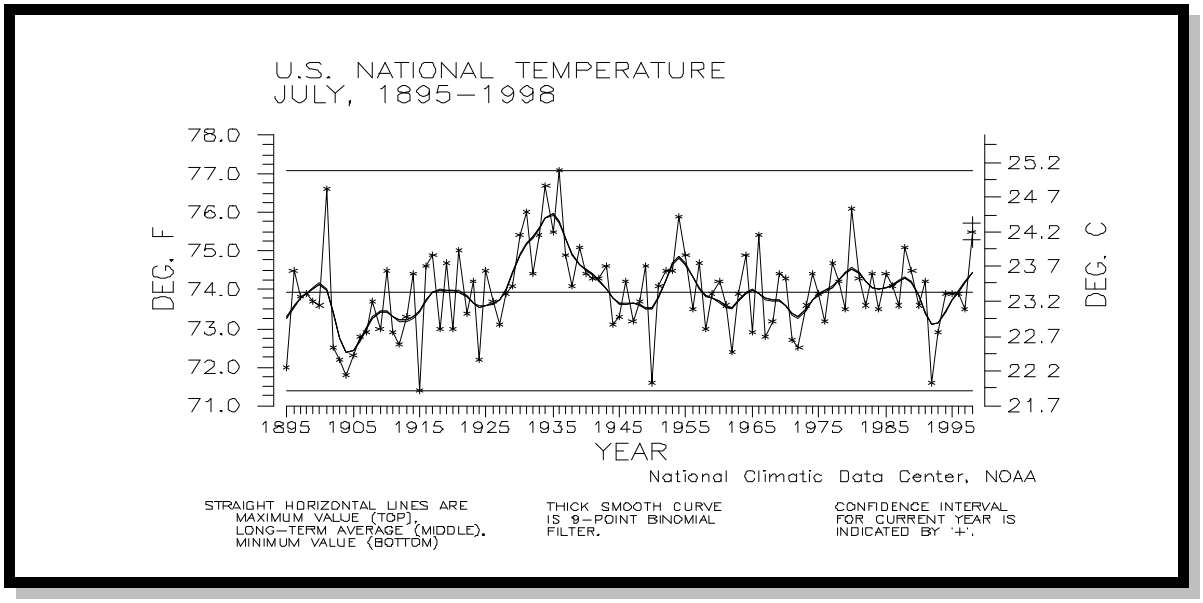
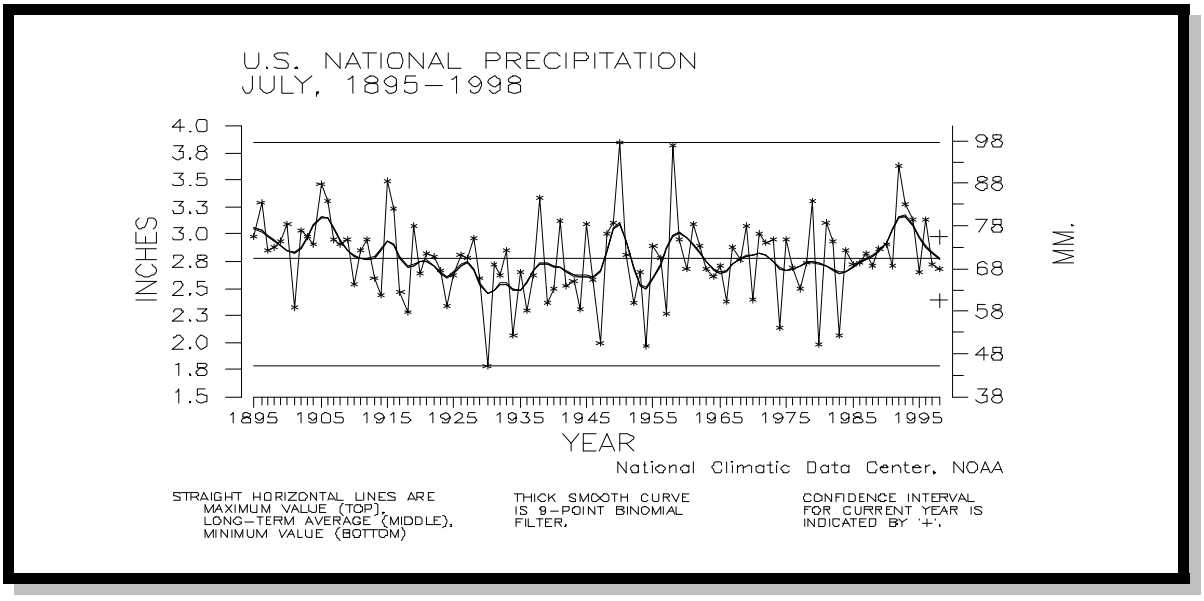
Monthly Activity Report

July 1998





Preliminary data for July 1998 indicate that temperature averaged across the contiguous U.S. was above the long-term mean ranking as the eighth warmest July since 1895 (top figure). Over 29 percent of the country was much warmer than normal while less than one percent of the country was much cooler than normal.

July 1998 was the 38th driest such month since 1895 (bottom figure) for the contiguous U.S. Over 11 percent of the country experienced much drier than normal conditions while over 12 percent of the country was much wetter than normal.

DIRECTOR'S HIGHLIGHTS

White House Requests

At the request of the White House Office of Science and Technology Policy (OSTP), the National Climatic Data Center (NCDC) provided a variety of graphics depicting century-scale trends in extreme events. Heavy precipitation events appear to be increasing and light precipitation events appear to be decreasing over the contiguous 48 states. Drought frequency has been decreasing. NCEP assisted by using NCDC historical divisional data and near-real-time June 1998 data for state-wide climatic perspectives that were faxed to the White House. OSTP will utilize the information provided in an upcoming Congressional briefing.

NCDC has become increasingly involved with White House requests for long-term perspectives on current climatic anomalies. Several NCDC employees have met personally with the Vice President, and we expect these OSTP-coordinated interactions to continue for some time. In an effort to produce the best possible NOAA satellite and in situ blended digital Earth displays, NCDC is investigating ways (e.g., via High Performance Computing and Communications (HPCC)) to improve its hardware, software, and staff training in data blending and display technology.

NCDC on CNN

The National Climatic Data Center (NCDC) was featured in a segment of CNN's "The World Today" broadcast at 8 p.m. on July 21, 1998. Hosted by Martin Savidge, the program presented NCDC's functions as a NOAA data center. Mr. Savidge toured the computer facility and tape library, and discussed NCDC's role in describing the current climate and changes in the global environment. A number of NCDC personnel were interviewed. During a live CNN broadcast earlier in the day, Michael Changery was interviewed about the changes in the global extremes environment. He was also interviewed by a radio station in Orlando, FL, in a live broadcast on July 22, concerning current climate extremes observed in Florida and the global environment.

CLIMATE DATA AND INFORMATION SERVICES

✦ Data Base Development

Climate Extremes CD-ROM

The National Climatic Data Center is developing a CD-ROM that allows the user to choose a climate station in the continental U.S. and calculate probabilities, based on the current climate, having any number of days in a given month over or under a specified temperature threshold (e.g., the probabilities of having 1, 2, 3,... 31 days over 100F at Dallas in July). In addition, the user can specify a change in various aspects of the temperature statistics, including changing the average temperature for the month, and see how the probabilities change. Once the CD is finalized, Vice President Gore is scheduled to announce its availability.

Network Upgrade

Cabletron engineers worked with National Climatic Data Center technicians to install, test, and implement the first phase of the network upgrade to provide 100 Mbps communication to desktop PC users. The upgrade has worked well and all known problems have been resolved. This represents a significant improvement in performance (a ten-fold increase in bandwidth for many users), better security (improved filters and checking), and monitoring/troubleshooting of the Center's computer network.

✦ Data and Information Distribution

July Demonstrates Growing Customer Preference For Web Access

Preliminary analyses of July customer statistics suggest that there continues to be a growing customer preference for on-line access of National Climatic Data Center (NCDC) data. Electronic mail contacts received last month bucked the overall trend with a significant 32 percent increase over July 1997 receipts, illustrating the continuing growth in customer preference for this electronic media. The growing popularity of NCDC data sets available on the World Wide Web is best demonstrated by the data products purchased last month on the NOAA National Data Centers (NNDC) On-line Data Store Web site. A total of 18,000 customers accessed 105,000 pages of NCDC data last month from the NNDC Web site representing a 40 percent increase from June 1998 figures. July 1998 on-line data sales reflected a 45 percent increase from June 1998 totals. The 2,000 on-line orders placed last month partly resulted from a new on-line annual subscription service made available to customers during the latter half of the month. The subscription functionality enables customers to purchase an annual subscription which permits access of unedited Local Climatological Data (LCD), National Weather Service Cooperative Station data, and Surface Weather Observations (10A/B forms) for a period of one year from purchase.

Real-Time Cooperative Data Flowing to NCDC

The Regional Climate Centers (RCC) have begun decoding a variety of National Weather Service communication messages in order to provide daily, i.e., real-time, transmission of Cooperative observations to the National Climatic Data Center (NCDC). With four of the six RCCs now processing data, over 2,700 stations were received in July. It is expected that this number will reach 3,500 with the addition of the remaining two centers.

Florida Fireworks Ban Supported

Only hours before the Independence Day holiday was to begin, the National Climatic Data Center (NCDC) was asked by the U.S. Forest Service to provide weather summaries for the past few months for Florida. The Forest Service was involved in an effort to keep a ban on selling fireworks in Florida over the Independence Day holiday from being lifted. The ban had been instituted because of the danger of fireworks causing forest and brush fires. NCDC responded by sending the Forest Service Palmer Drought indices, temperature, and precipitation data for Florida's climate divisions. In addition, monthly climatic normals were sent via ftp, and *Local Climatological Data* publications for major Florida cities from January through June 1998 were faxed.

NCDC Provides One-Stop Climate Change, Extremes, and Events Web Site

With the growing interest in climatic and weather extremes, the National Climatic Data Center (NCDC) now has a Web system on-line which links to all NCDC Web pages related to climatic extremes, weather events, climate change, El Niño, natural disasters, and U.S. climatologies for extremes. The recent surge in news media, government, and individual interest in these topics

has led to numerous inquiries for data and information, and even the formation of a "Rapid Response" team at NCDC. Users can now go to a single Web page (http://www.ncdc.noaa.gov/ol/climate/severeweather/severeweather.html) to find what NCDC has to offer on-line regarding these topics. Within this system, users will find a wealth of data, maps, images (e.g., satellite, radar) and reports for each topic, such as El Niño, 1993-1998 Weather Events, U.S. Tornadoes, Historical Global Extremes, etc. When an extreme event occurs, Web users can access this site to see what NCDC has placed on line, or to obtain data and information for past years' events.

Reports Provided to Australian Embassy

The National Climatic Data Center (NCDC) provided a copy of its report *Earth Day, El Niño, and Climate Change* to the Embassy of Australia in Washington, D.C. The embassy's Counselor of Science and Technology requested a copy of the report through the National Environmental Satellite, Data, and Information Service (NESDIS) Office of International and Interagency Affairs. NCDC also provided a copy of its Technical Report 98-02 on the El Niño Winter of 1997-98, and the NCDC *Products and Services Guide*. The Embassy reported that it had also been using NCDC's Web page on El Niño (http://www.ncdc.noaa.gov/ol/climate/elnino/elnino.html).

NCDC Scientist on "Science Friday"

National Climatic Data Center (NCDC) scientist Tom Peterson was a guest on the National Public Radio program "Science Friday." Dr. Peterson brought a climate perspective to the one hour discussion of the current spate of forest fires around the globe with the other guests, Ronald Myers, the Director of the Nature Conservancy's Fire Management and Research Program in Tallahassee, FL, and Dr. Adriana Moreira, Assistant Scientist, Woods Hole Research Center and President of the Institute of Environmental Research for Amazonia, Brasilia, Brazil, providing more detailed information on the fires.

Improved NEXRAD Web Services

Two new Web-page prototypes were added to the local page (http://www.ncdc.noaa.gov/local/local.html) at the end of July for NCDC Review.

1.) National Mosaic Reflectivity Images - NCDC personnel modified the current version of the National Mosaic Display Web page to include a looping capability for 3-hourly images and the capability to click on any location on the national map and blow up (zoom in) that location with a selectable magnification of 2x to 5x. A Web page was set up to display the national mosaic images in a column and row format, provided by the National Geophysical Data Center.

2.) Storm Events - NCDC is developing a prototype Event Directory which contains information from the Storm Data Publications. Web users can select dates, times, storm types, as well as states or counties of interest and receive storm statistics and narratives based on the selection. A Web user might select tornadoes of a certain magnitude, hail greater than a specified size, or wind speeds higher than a selected velocity. Storm Events currently cover 1996-1997 with plans to add additional data.

✦ Research Customer Service Group Requests

NOAA Scientist Uses Profiler Data in Research Project

A researcher with NOAA's Environmental Technology Laboratory (ETL) obtained historical wind profiler data for a period in March 1993. The ETL performs oceanic and atmospheric research and develops new remote-sensing systems. The lab studies the interaction of radio, radar, light, and sound waves within the ocean and atmosphere and develops innovative ways to use these waves to study atmospheric and oceanic processes, and to probe regions that are not readily accessible by conventional measurements. The researcher will use the data in a study focusing on the modulation

of fronts by steep topography to the east of the Continental Divide in Colorado. In addition, this study will look at the generation of vertically propagating gravity waves by these topographically modulated fronts.

Boll Weevil Eradication

A U.S. Department of Agriculture/Agricultural Research Service entomologist is coordinating research on the cotton-destroying boll weevil with the Southeastern Boll Weevil Eradication Foundation. The combined effort will hopefully eliminate the destructive weevil from the mid-southern part of the U.S. The weevil has already been eliminated in the southeast. The effort includes running a temperature-driven model that provides program officials with information on optimal insecticide spray intervals used to eradicate the insect. To be accurate, the models require real-time and historical temperatures for specific locations. The National Climatic Data Center provided 30 years of hourly dry bulb temperature data for 3 key locations for use with the model.

✦ Satellite Data Requests

The National Climatic Data Center Assists EPA in Settling Sahara Dust Mystery

The Air Monitoring Manager for the local air pollution agency in Chattanooga, TN, saw an unusual sandy beige color on particulate filters. Confirming reports from other regional Environmental Protection Agency (EPA) offices throughout the Southeastern U.S. showed the same color change was observed on other particulate filters. The Nashville, TN, Air Monitoring Agency was the first to report the dust on June 26. The dust most likely came from Western Africa, where there had been dust storms during the week of June 21. Satellite images taken by GOES-8 and NOAA-14 showed dust moving westward across the Atlantic Ocean into the Caribbean region, where it reduced visibilities to less than six miles during the last week in June.

Gulf War Illness Request

The Office of Special Assistant to the Deputy Secretary of Defense for Gulf War Illness has requested satellite images of Iraq during a two week period in February 1991. These images, furnished by the National Climatic Data Center, depict smoke plumes from which surface wind direction may be acquired.

✦ Requests from News Media

Media Interviews

National Climatic Data Center (NCDC) climatologist Tom Peterson was interviewed July 16th by Earthwatch Radio of Madison, WI, on the recent record high global temperatures. Earthwatch Radio produces 2-minute segments on environmental issues that air on over 100 radio stations, mostly in the upper Midwest. NCDC's Rob Quayle was interviewed by the “Dallas Morning News” and by a newspaper reporter from Roanoke, VA, regarding the Urban Heat Island and its effects on health and climatic data studies on global warming.

Cleveland Radio Addresses Weather Issues

WTAM Radio of Cleveland, OH, contacted the National Climatic Data Center for a summary of recent monthly temperature and precipitation trends for the Cleveland area. The data revealed a slightly wetter than normal winter and spring (especially April), but the outstanding aspects were the low seasonal snowfall total (34.0 inches, lowest since 1957-58) and the warm January-February average temperatures (warmest since 1932). The data were used on a show dealing with agricultural issues.

CBS News Requests Hurricane Web Sites

The National Climatic Data Center supplied a list of URL Web addresses for U.S. Government and university hurricane Web sites to CBS News. CBS

requested this information for quick reference to sites which provide both historical as well as real-time hurricane data.

✦ Private Industry Interactions

Consulting Firm Requests Hourly Data

A consulting firm in the Midwest requested hourly surface weather observations from several locations in Ohio to cover the period from 1990 through the most recent data available. The firm acquired the *Hourly United States Weather Observations, 1990-1995* CD-ROM and additional hourly data from both the *Hourly Surface Airways Observations (TD-3280*) and *DATSAV2* data bases. The data will be used by an electrical utility company to examine correlations between weather and corresponding electrical load conditions, and to plan future loads accordingly.

✦ Interesting Requests

Hazardous Waste Issues

The Federal Bureau of Investigation (FBI) and the Environmental Protection Agency (EPA) are conducting a joint investigation of a metal smelting operation accused of polluting a portion of the Mississippi River. This Western Illinois company is suspected of draining hazardous zinc oxide into adjacent wetlands which outflow into the Mississippi basin. The FBI requested daily precipitation data to determine the days that significant runoff and subsequent pollution occurred. The National Climatic Data Center (NCDC) provided cooperative climate records for Alton, IL, for the period January 1986-May 1998. This data will be used to assess the monetary damages to be imposed upon the alleged violator.

✦ Technology Applications

Service Added to NNDC On-Line Store

A subscription module was implemented into the NOAA National Data Centers (NNDC) On-Line Store which allows external customers to receive on-line the Unedited Local Climatological Data summary, National Weather Service Cooperative Station Summary of the Day, and the Surface Weather Observations. Web users can select one, multiple, or all stations for each of these products for a one-year period. It is expected that this will be a very popular feature for NNDC's on-line services, as evidenced by the subscriptions received during the first few days of operation.

✦ Regional Climate Centers

Software Development

Activity continues on improving the near real-time data acquisition system at several of the Regional Climate Centers (RCC). This serves the RCC participation in the MAC study as well as climate monitoring for the Western Governors Association's Western Drought Coordination Committee, the weekly climate summary for the Idaho Agricultural Statistics Service, and soon for the California Agricultural Statistics Service. One recurring theme is the lack of uniformity in the way the data are reported from the various National Weather Service field offices.

Next Keying Project

Most of the Midwestern State Climatologists have agreed to participate in another keying project in conjunction with the Midwestern Climate Center. The focus for this project is on pre-1890 daily data and pre-1948 hourly data. Glenn Conner, Kentucky State Climatologist, visited the National Climatic Data Center (NCDC) to discuss procedures for obtaining hard copies of the relevant data sets. This is a key issue because the records are available on microfilm and will have to be copied for the key-entry personnel. In cooperation with NCDC, a roll of microfilm was sent to a company in Washington state to determine whether they could produce copies of sufficient quality. After inspection, it was decided that the copies were of sufficient quality and it

would be most cost-effective to have this company make copies. NCDC has agreed to lend rolls of film for the purpose of making such copies.

Snow Load Studies

A paper entitled "Mitigating Snow-Induced Roof Collapses Using Climate Data and Weather Forecasts" was submitted to Meteorological Applications by the staff of the Northeast Regional Climate Center. In the paper, a method to predict extreme roof snow loads is described. The procedure utilizes a combination of recent climate data (antecedent snow water equivalent information), probabilistic precipitation amount forecasts and historical extreme snow water equivalent data. Use of the procedure is illustrated using precipitation amount probabilities derived directly from a statistical guidance product and using conditional climatological probabilities, both with a lead time of 36 hours. The procedure is applied across a portion of the northeastern U.S. where extreme snow loads during January 1996 resulted in widespread roof damage, injuries, and a death. Based on the 90th percentiles of the forecast precipitation amount distributions, the procedure accurately identified the areas in which greater than 100-year return interval snow loads were observed.

SCIENTIFIC AND PROFESSIONAL ACTIVITIES

✦ Working Groups/Committees/Meetings

DOE Coordination

David Easterling of the National Climatic Data Center (NCDC) attended the Department of Energy (DOE) JASON meeting on the Accelerated Climate Computing Initiative July 1-3, 1998, in La Jolla, CA. The JASONs are an advisory group of scientists from various disciplines (i.e., high energy physics, biology) that look at big initiatives and give advice. There were numerous modeling presentations given by the National Center for Atmospheric Research (NCAR) and others. David gave a 50 minute presentation on “Observation Based Diagnostics for Model Evaluation.” Ari Patrinos of the DOE was very complimentary and he and others had high praise for the work done at NCDC in developing data sets such as Global Historical Climatology Network (GHCN), Comprehensive Aerological Research Data Set (CARDS), Comprehensive Ocean-Atmosphere Data Set (COADS), etc.

COMPS

Formal training was provided for National Oceanographic Data Center Customer Order Management Processing System (COMPS) users on July 7 and for National Geophysical Data Center COMPS users on July 29. Two Environmental Science Data Information Management employees and one Systems Acquisition Office employee have been added to the COMPS system and now have the ability to gather statistics directly from COMPS. COMPS team members continue to work closely with On-Line Store team members to assure consistency and continuity between these two NOAA National Data Centers (NNDC) systems.

Federally Employed Women’s Conference

Catherine Godfrey and Jo Ann Sceizina of the National Climatic Data Center attended the Federally Employed Women’s Conference in Washington, D.C., July 21-25. Seminars included Financial Planning, Diversity, Image Building, How to Set/Reach Goals, Women and Leadership, and Empowering Women.

✦ Visitors

Newspaper Reporters Tour NCDC

Tom Ross of the National Climatic Data Center (NCDC) provided tours to John Fialka of the "Wall Street Journal" and Bruce Henderson of "The Charlotte Observer." Mr Fialka's interests lie with the economic impact of climate extremes and climate change. Mr. Henderson is working on a layout on the Center which will focus on how the mission of NCDC relates to climate change, research, and climate extremes.

✦ Publications

Temperature Trends

A paper, "Temperature Trends of the U.S. Historical Climatology Network Based on Satellite-Designated Land Use/Land Cover" by Kevin Gallo, Tim Owen and David Easterling (NOAA/NCDC), and Paul Jamason (Scripps Institution of Oceanography) has been accepted for publication by the Journal of Climate. The 1,221 weather observation stations that comprise the U.S. Historical Climatology Network were designated as either urban, suburban, or rural based on data from the Defense Meteorological Satellite Program-Operational Linescan System. Trends in monthly maximum and minimum temperature, and the diurnal temperature range were determined for the 1950 through 1996 interval for each of the three land cover designations. Although the trends between the land cover classes were not significantly different, they do present contrasts that might confound the interpretation of temperature trends when the local and regional environments associated with the analyzed stations are not considered.

✦ Interactions with NOAA Line Offices

NOAAPORT and SRRS Replacement

National Climatic Data Center (NCDC) personnel met July 23 to discuss plans for transfer via T1 line of Service Records Retention System (SRRS) and other products to meet National Weather Service (NWS) legal requirements. They reviewed plans and requirements for the NOAAPORT receive system to be installed at NCDC. The group decided that the transfer of data for NWS legal requirements would be considered a unique package with primary method of receipt being the T1 communications link. Several action items determined during the meeting included preparation of cost estimates for meeting non-legal NWS requirements with NOAAPORT, test transfer of SRRS data to NCDC via T1 by December 1998, obtaining decoders for NOAAPORT data, development of routines to load and retrieve SRRS data through the NCDC HDSS, and a determination of software needs to service from old SRRS tape data as well as the new T1 data stream.

EMPLOYEE ACTIVITIES

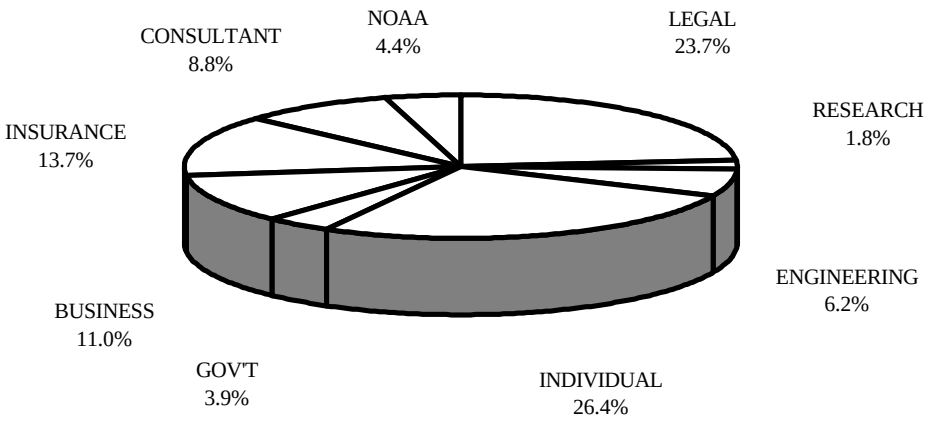
✦ Training

Onbase Document Management System Administrator Training

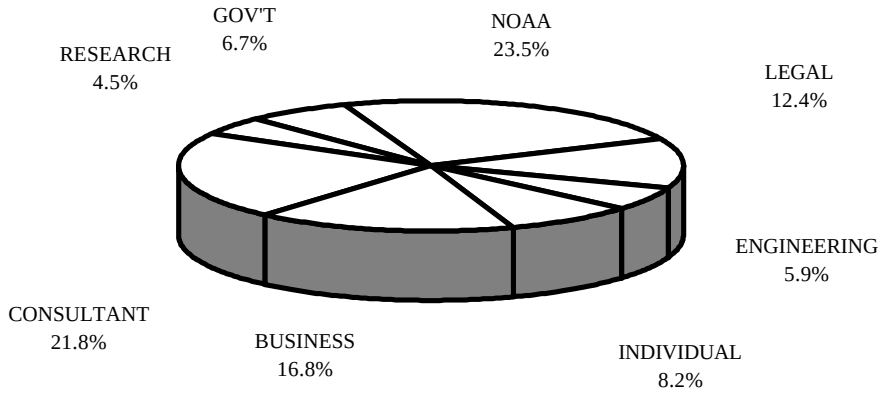
Doug McElreath of the National Climatic Data Center (NCDC) attended Hyland Software's OnBase Document Management System administrator training in Cleveland, OH, June 29 - July 2. Major topics included managing data as it flows through the system and how to maintain the Oracle databases. Doug was given a tour of the corporate headquarters, where he met with the technical support staff, company founders, and NCDC's sales representative.

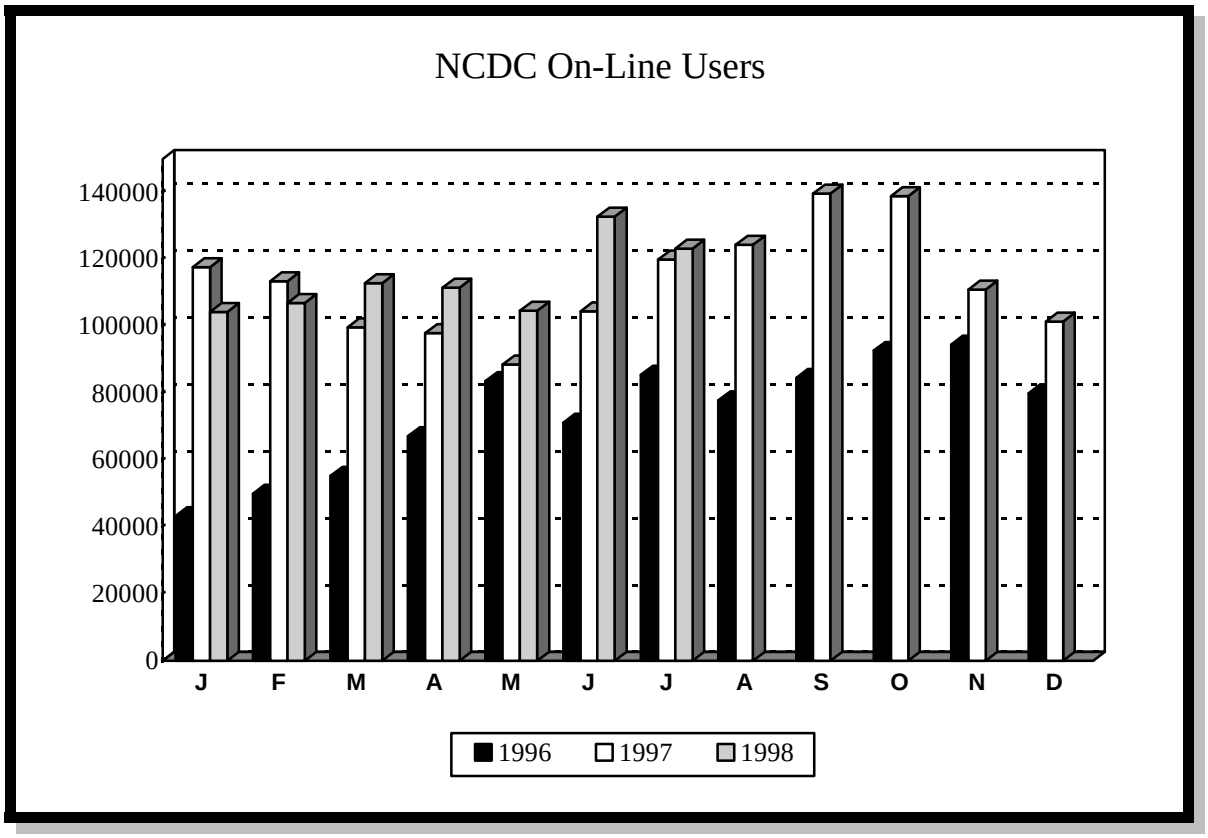
The following charts and graphs show the latest National Climatic Data Center user and data statistics.

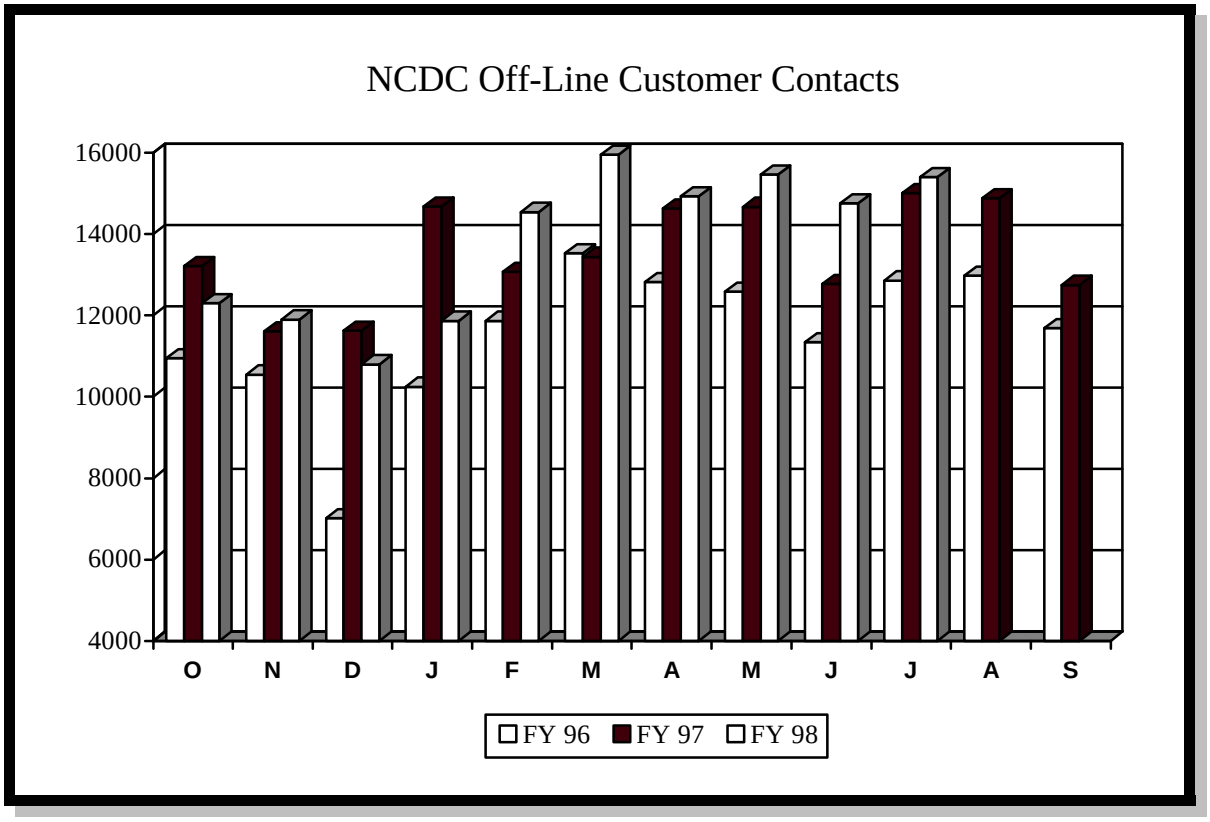
Customer Profile Based on Orders

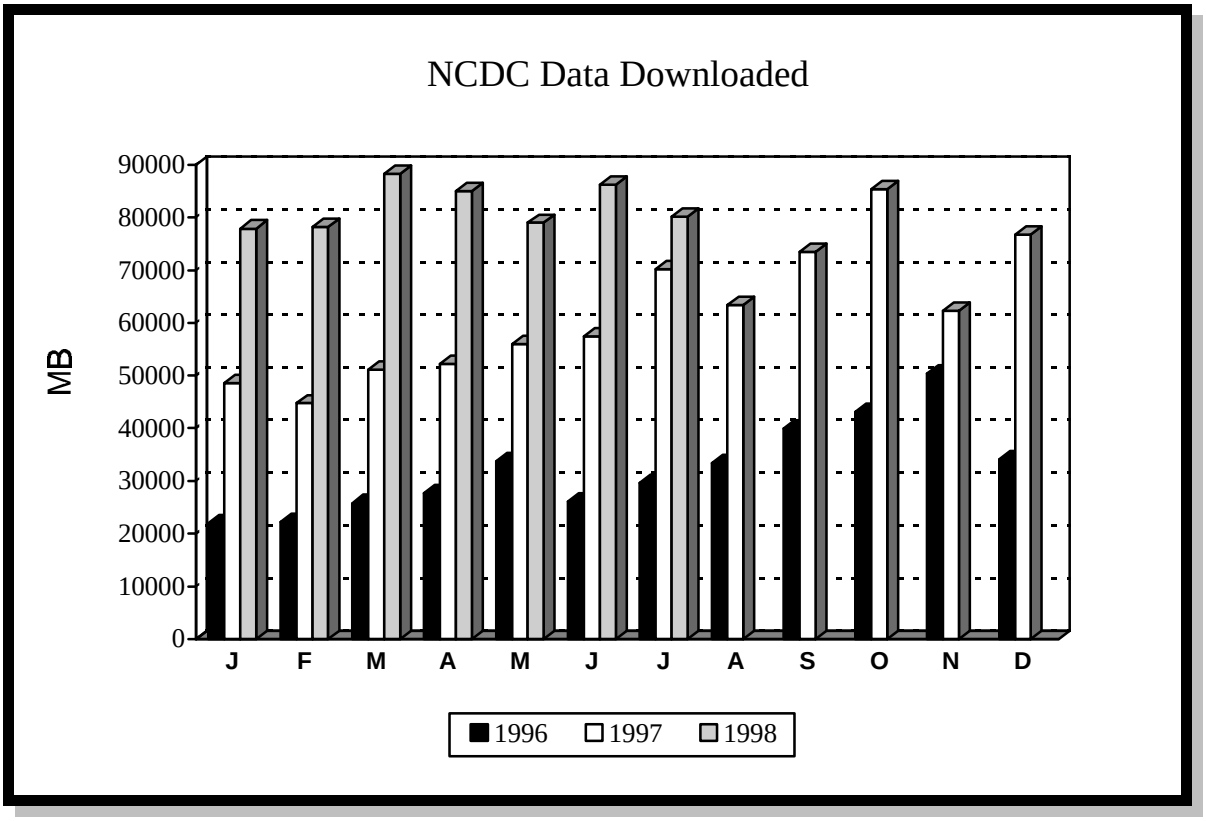


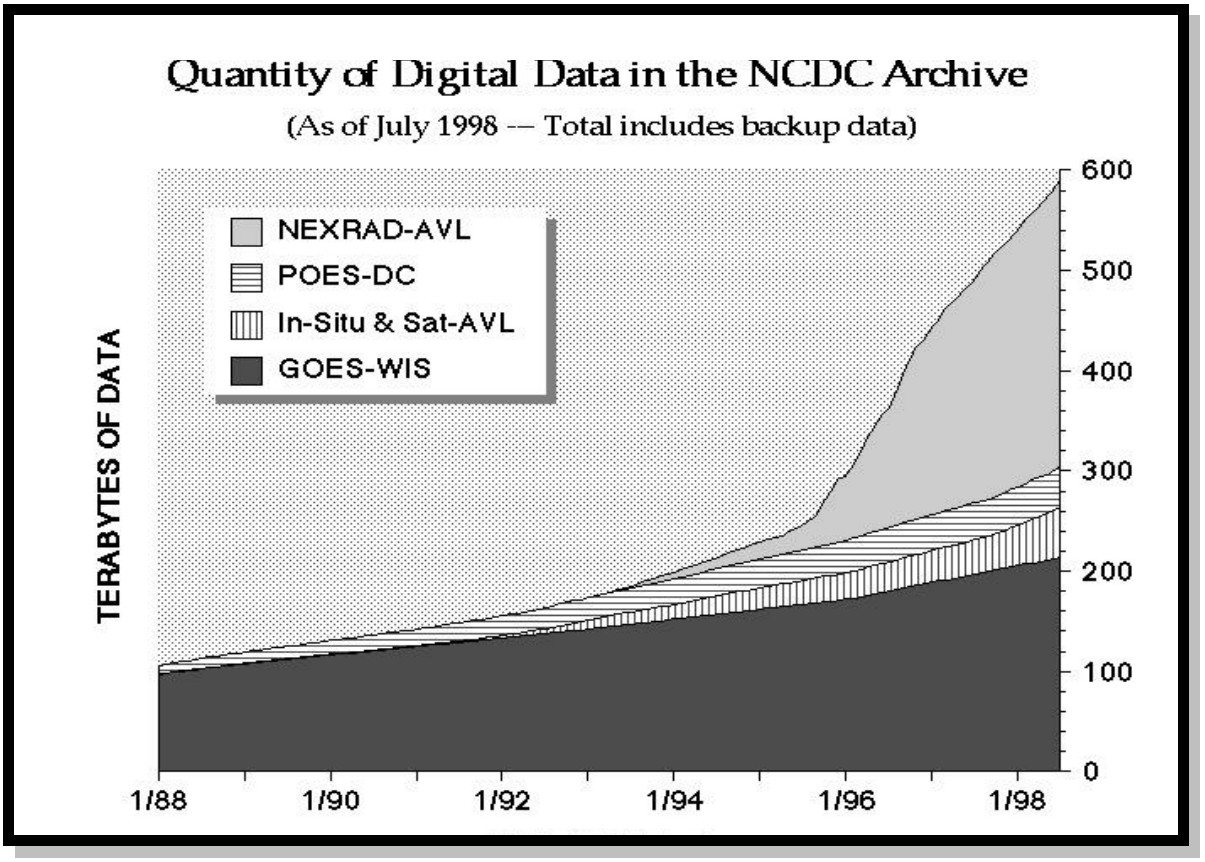
Customer Profile Based on Order Cost




NCDC On-Line Users
140000
120000
100000
80000
60000
40000
20000
0
J F M A M J J A S O N D
1996 1997 1998


NCDC Off-Line Customer Contacts
16000
14000
12000
10000
8000
6000
4000
O N D J F M A M J J A S
FY 96 FY 97 FY 98


NCDC Data Downloaded
MB
90000
80000
70000
60000
50000
40000
30000
20000
10000
0
J F M A M J J A S O N D
1996 1997 1998


Quantity of Digital Data in the NCDC Archive
(As of July 1998 -- Total includes backup data)
TERABYTES OF DATA
NEXRAD-AVL
POES-DC
In-Situ & Sat-AVL
GOES-WIS
600
500
400
300
200
100
0
1/88
1/90
1/92
1/94
1/96
1/98